

## **On the Nature of Triboelectric Effects**

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2026 July 18

Current physical doctrine holds that the generation of electrostatic energy is predicated upon the transfer of electrons from one material into another, a la a sponge absorbing water or silly putty removing a thin layer of newsprint from a newspaper which can later be imprinted upon a blank piece of paper.

This phenomenon, although it has been documented for centuries, is poorly understood.

In 1675, French physicist Jean Picard observed that mercury in a barometer, provided that it is under vacuum, emitted light when turbulated. This phosphorescence was ultimately attributed to friction between the glass and the mercury, but the question of why it was that light was generated only under the condition of atmospheric vacuum was never answered.

This author has re-examined this phenomenon and has prepared a novel treatise to address not only this phenomenon, but to address triboelectricity, more generally, which comports with other understandings of physics more elegantly than the currently accepted doctrine on the topic.

Central to my own hypothesis on this matter is a documented phenomenon called Self-Amplified Spontaneous Emission (SASE,) which has been observed within the context of Free-Electron LASERs. When electrons come into close proximity with one another and forcefully brush past one another, either with the aid of mechanical motion as in a Van de Graaff generator or in the context of an FEL, it's been observed that we get more electrons out than were put into the energetic system. This is not simply a matter of electrons being moved from one material into another, it's a matter of charge being generated. This is not acknowledged/addressed in the currently established theory of triboelectricity.

In order to understand the actual dynamics of triboelectricity and SASE effects (one in the same, I would argue,) one has to understand that electrons can be effectively duplicated under the condition that their charge becomes physically segregated from their associated magnetic vortex (i.e. the chargon and the spinon come out of alignment.) This is currently believed to be possible only in extremely unusual circumstances, but I would suggest that it is a common phenomenon central to electrostatic energy generation.

Electrons in orbit around nuclei are influenced by the attractive force of the protons in the nucleus (electroweak attraction,) but are also influenced by electroweak repulsion by other electrons as well as the magnetic moment of other electrons. The magnetic component and the electrical component of these electrons, therefore are not always symmetrically influenced as they move through orbital systems and friction, as it were, introduces a great deal of asymmetry in the way in which the spinon and chargeon components of electrons are influenced. The electrical energy to generate an initial electron or a duplicate electron ultimately comes from the gravity (the neutrino influx

prompted by the positive electrical charge of the nuclei) of individual atoms. Protons are also responsible for giving us the Higgs Field, which allows for mass to be transferred to photons so that they can be converted into electrons through the Photoelectric Effect.

Gamma, which is generated in minute quantities from friction (including the separation of pieces of scotch tape, which has been documented for decades) is capable of being converted photovoltaically by virtually any substance, including atmosphere. Light in the UV range may only be photovoltaically converted by certain metals, making the creation of efficient solar cells challenging. However, Gamma, because of its low mass and more frequent changes in phase direction (i.e. they have more spin-pauses) is more readily influenced by Coulomb attraction within the electron clouds of atoms of any stripe, both due to the lower mass and its comparatively intermittent magnetic moment. Gamma will, therefore, spend more time within the Higgs Field of a nucleus and is much more likely to convert into an electron than a lower-energy photon, which requires metals to achieve this as metals are higher in their density and provide more opportunities for these conversions.

When mercury is agitated within a glass tube under vacuum as in the Picard experiment, there is no atmosphere to support photovoltaic conversion. The Gamma generated by this friction is not immediately converted into an electron and, when it is converted into an electron, it strikes mercury which is already carrying an overall negative charge. This results in electrons already in stable orbits being converted into photons in the visible spectrum and in the documented phosphorescent effect. Mercury tends to conduct heat well, but conducts electrons poorly. Atmosphere tends to conduct heat poorly but tends to conduct electrons freely, leading to arcing through atmosphere when significant charge imbalances exist and a circuit is created.

This understanding can improve our understanding of other documented phenomena, including the increased emission of X-Ray and Gamma by the detonation of nuclear weapons in space. During a well-known test of an atomic weapon over the Pacific Ocean called Starfish Prime on July 9, 1962, transformers 800 miles away in Hawaii were overloaded by the electromagnetic pulse generated. Although it is understood that space-based detonations of nuclear weapons produce EMPs, the true reason for the increased emission of X-Ray and Gamma associated with this test was never fully explained. The gist of the explanation provided was, "the conservation of energy demands that the energy must "go somewhere" and so it goes into the high-energy photons." I, personally, never found this explanation satisfactory.

If Gamma is converted by atmosphere directly into electrons and space-based detonations of nuclear weapons produce Gamma which must ultimately pass through atmosphere whether detonated in the vacuum of outer space or not, it is puzzling to consider that the EMP effect is stronger when the detonation occurs in a vacuum, at least until one considers the effects which electrical arcs can have on photons, either to increase or decrease the frequency of the light passing through them.

If Gamma is generated within the atmosphere, it is converted directly into electricity and the surrounding atmosphere becomes supercharged. I would

suggest that what is essentially a wall of electrons forms around the point of detonation of the weapons which, if further Gamma passes through that initial shell of electrons, has the effect of stepping down the frequency of some of the Gamma to lower frequencies in the visible spectrum and in the IR spectrum.

When a space-based detonation occurs, there is no coherent electron shell resulting from photoelectric conversion of the initial Gamma and, therefore, nothing to take the subsequent Gamma and X-Ray energy generated and to step some of it down into the lower frequencies. This is the reason why Starfish Prime's energy was released primarily as Gamma and X-Ray energy; the absence of an electron shell forming around the core thermonuclear reaction.

Therefore, when we look at Jean Picard's observations in this new light, we can understand atmosphere as a dampener of Gamma energy as even nitrogen and oxygen can act both as photovoltaic materials vis-à-vis Gamma energy and as a diffusive medium with respect to electrons.